auma®

DP-WIN (Version 2.0)
Test and demonstration software for PROFIBUS DP actuators

Manual

TÜV CERT
DIN ISO 9001/
EN 29001
Certificate Registration No.
12 100 4269

Scope of these instructions: These instructions are valid for AUMA actuators with controls AUMA MATIC/ AUMA VARIOMATIC PROFIBUS DP.

Table of Contents

1. Introduction

DP-WIN is the PROFIBUS DP test- and demonstration software for AUMA actuators.
AUMA actuators with PROFIBUS DP interface can be tested on site with this program. It can also be used as a demonstration software to show the characteristics of the AUMA PROFIBUS DP actuators.

1.1 Summary of functions

- Display of all stations that are on the PROFIBUS (live list).
- All information supplied by the actuator via PROFIBUS DP is displayed.
- Control of AUMA actuators.
- Automatic test run for AUMA actuators.
- The AUMA parameters can be set.
- Parameter sets can be saved.
- Read-out of operational data and electronic name plate (if available in actuator, software version in actuator: Z027.988/01-01 or Z027.988/01-02)

2. Installation

2.1 Hard and software requirements

2.1.1 Hardware

- PC or PC compatible laptop (Pentium class or higher)
- min. 32 MB RAM.
- min. 5 MB memory on hard drive
- Softing PROFIcard (PCMCIA) or Softing PROFIcard (ISA) Profibus Master card

2.1.2 Software

- Operating system Windows NT 4.0
- Softing Windows NT PROFIBUS Application Program Interface Version 5.22

2.2 Installation

Installation is done in two steps.

2.2.1 Installation of the Master card and the Profibus Application Program Interface

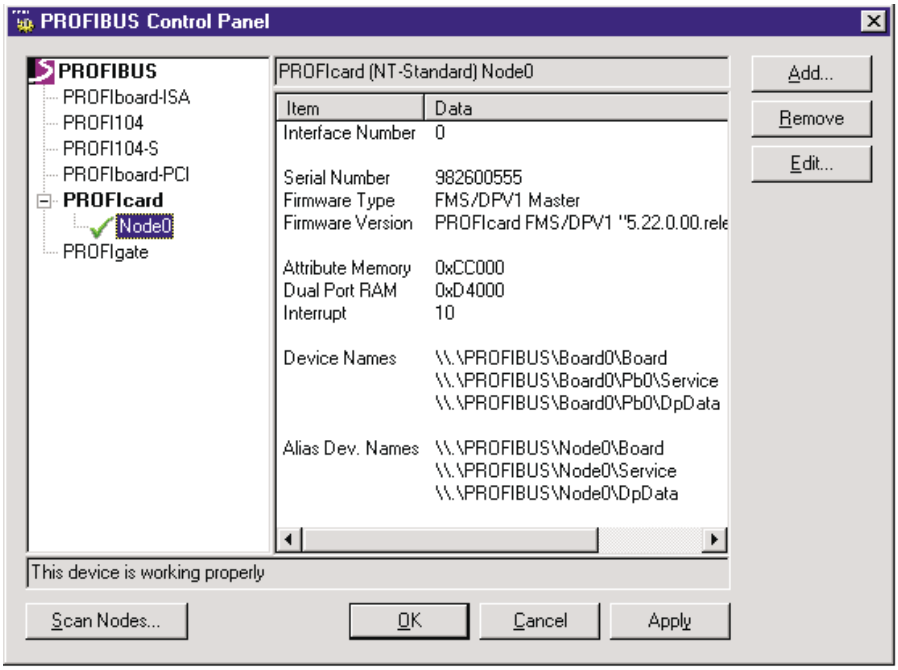
Please perform the installation according to the instructions of the ”PROFIcard Installation and Hardware User Manual” and the ”PROFIboard User Manual”.

- **To be able to install the ”Profibus Application Program Interface” the user must be logged in with the administrator password.**
- **The automatic setting of the interrupt does not always function when the Proficard is installed. We recommend to individually select a free interrupt.**

After correct installation of the card the following program symbol should appear in the system control:

After a double-click on the symbol, the following window should open (Node0 checked):

Figure 1: PROFIBUS Control Panel, example: Toshiba CDT4010 CDT laptop



If a red cross instead of a green check mark is displayed, the settings of the IO Ports, the DP RAM address or the interrupt are probably not correct. In this case, please check the free resources of the computer with the program Windows NT diagnosis which can be started via ”Start -> Programs -> Administration (general)”.

2.2.2 Installation of the program DP-WIN

Insert the disk labelled AUMA DP-WIN Version 2.0 Disk 1/2 into the disk drive of the computer and start the program:

Afterwards please follow the instructions of the program

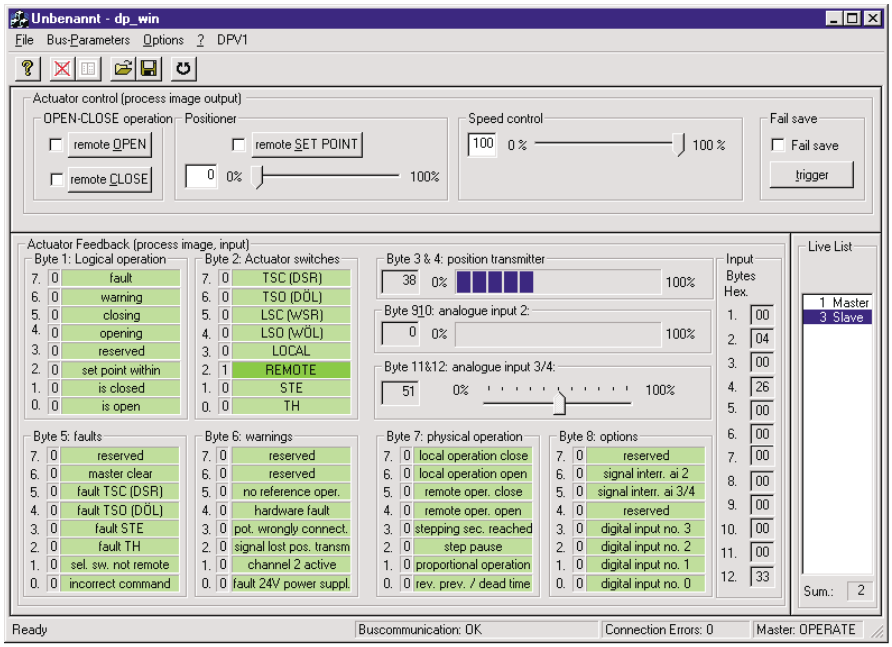
2.2.3 Starting the program

After installation, start the program DP-WIN by double-clicking on

under ”Start -> Programs”.

3. User interface

Figure 2: The user interface of DP-WIN



3.1 The menu bar

The menu bar offers the following options:

3.1.1 File

- **Exit:**
  Closes the program.

3.1.2 Bus parameters

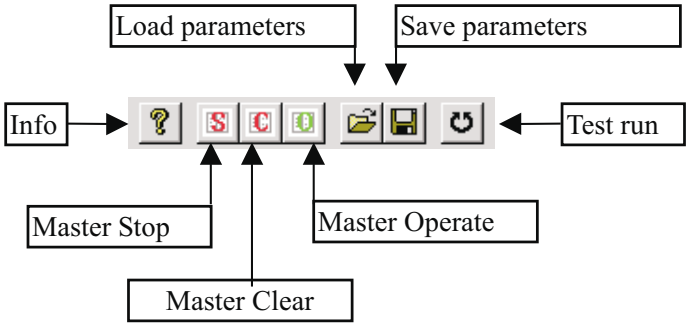
- **Slave AUMA parameters:**
  Special parameters for the actuator are set here. The individual parameters are described in the operation instructions for AUMA PROFIBUS DP actuators.
- **Slave configuration:**
  The configuration determines the quantity of bytes transmitted to the slave and the quantity of bytes received by the slave.
  Furthermore a distinction is made between consistent and non-consistent configuration.
  For the DP-WIN program it is not important whether a consistent or non-consistent configuration is chosen since the data are always treated as consistent data.
- **Slave Profibus parameters:**
  The watchdog can be switched on or off here.
  If the watchdog is active the slave detects a failure of the master after the monitoring time out and may react accordingly (e. g. with a safety operation).
  For the functions safety operation and change-over of channel it is imperative that the watchdog is switched on.
- **Master Bus parameters:**
  The address of the master and the baudrate can be set here.
  AUMA devices are certified up to a baudrate of 1,5 MBit/s. Higher baudrates should not be used. A stable communication cannot be guaranteed for baudrates higher than 1,5 MBit/s.

3.1.3 Options

Function second analogue input:
In this menu a selection can be made regarding whether the second analogue input is used for measuring the torque (for actuators type AS) or as an external sensor.

3.2 The tool bar

Figure 3: Tool bar



3.2.1 Info

Here a short information about the DP-WIN program and the current version is displayed.

3.2.2 Master Stop

Puts the master in STOP-state.
In STOP-state, there is no communication between master and actuator, i.e. the master can neither control the actuator nor read data from the actuator

3.2.3 Master Clear

Puts the master in CLEAR-state.
In CLEAR-state, the master only reads the data from the slave. But it can no longer control the slave. In this state, the actuator will perform a safety operation when it has been programmed accordingly.

3.2.4 Master Operate

Puts the master in OPERATE-state. It can then control the actuator again.

3.2.5 Save parameters

All parameters set under the menu Bus parameters are saved.

3.2.6 Load parameters

The parameters are loaded and activated.

3.2.7 Test run

Clicking this button opens the window Test Run. With the test run, the correct functioning of the actuator can be checked. The test run is described in detail in chapter 4.

3.3 The window Profibus stations (live list)

Figure 4: The window stations of the Profibus (live list)

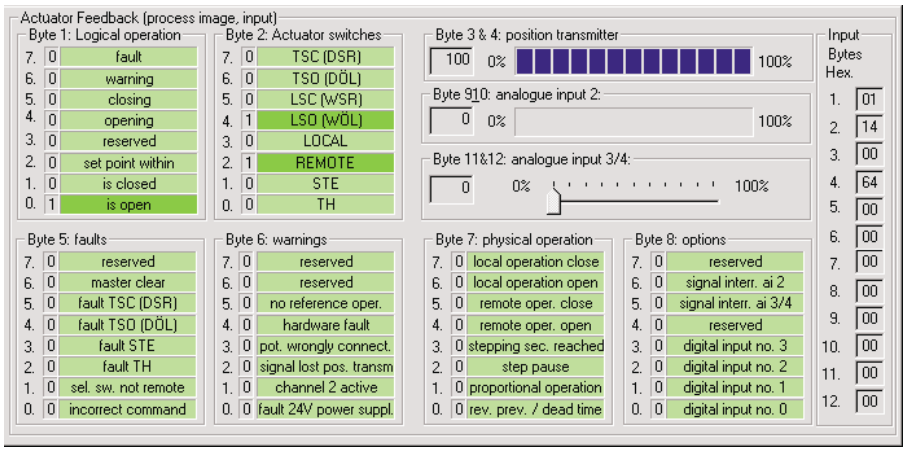
This window shows the addresses of all stations connected to the Profibus. Furthermore, it is indicated whether the station is a master (controls, e. g. PLC or PC) or a slave (e. g. AUMA actuator).
Clicking a slave number will mark it. The program then controls the marked slave.
The main live list shows the total of all stations (including the master) of the bus. With this overview it is easy to check which stations are available within the bus.
If no slave is selected by the user after switching on, the slave with the smallest address will automatically be selected after 7 seconds.

If no stations are shown in the live list this may point to a short-circuit in the Profibus.
The program should be restarted with the bus disconnected.
If the master is now shown as the only station, either the Profibus has a short-circuit or the bus termination is incorrect (no voltage at bus termination).

3.4 The window Actuator status (process representation input)

This windows displays the actuator's status sent by the actuator to the master.
If communication fails this window is not opened.

Figure 5: The window Actuator status (Process representation input)



The individual Bits in the process representation input are shown in different colours.
- light green: the Bit is not active (0)
- dark green: the Bit is active (1)
- red: the Bit is active (1). A fault or warning has occurred.
- light gray: with the present configuration the Bit is not transmitted.

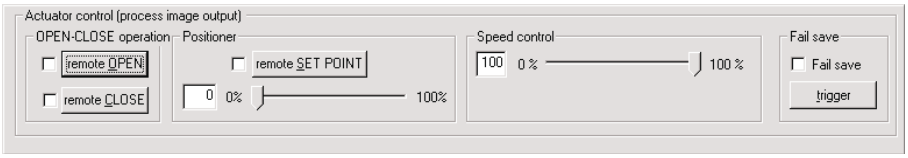
In the field "Input Bytes hex." the individual input bytes are shown as hexadecimal figures.

The analogue values from the positioner and from the customer's analogue inputs are shown as decimal values and graphically as bars or sliding Setting for the code of measurement values (percent or per mil) of the AUMA parameters is automatically accounted for when displaying bars or sliding scales.

The meaning of the individual information is explained in the operation instructions for Profibus DP actuators.

3.5 The window Actuator control (process representation output)

Figure 6: The window "Actuator control"



With this window, the actuator can be controlled. If communication fails this window is not opened.

With the buttons remote OPEN and remote CLOSE, the actuator can be operated in opening or closing direction.
With remote Nominal the modulating duty is switched on. The actuator now runs to the defined position. The nominal position can either be set with the sliding scale or as a number in the box to the left of the sliding scale.

If a command is active this is shown by a check mark in the box to the left of the button.
Only one of the three commands remote OPEN, remote CLOSE or remote Nominal can be active at any given time. If more than one command is active, the actuator signals the fault "incorrect command".

For adjustable speed actuators (e.g. AS or SARV with VARIOMATIC) the output speed of the actuator can be determined by the speed setting.

With the button "trigger fail safe" the fail safe function can be triggered in the ALS actuator with mechanical fail safe function. With all other actuators this button has no function.

3.6 The status bar

The status bar is divided into four fields.

The first field shows help texts for the buttons in the tool bar.

The second field shows the status of the bus communication:

The following indications are possible:

- Bus communication: OK
  No fault in the communication has occured
- Fault: No connection to the slave
  There is no communication with the slave.
  Possible causes:
  - Bus cable open circuited.
  - Faults on the bus cable, e. g. due to incorrect bus termination.
  - Supply voltage is not available for the slave.
- Fault: Slave is occupied by another master
  Another master communicates in cycles with the slave. The other master has to be switched off in order to elimitate this fault.
- Fault: Faulty parameters
  The prameters under the menu items
  Bus parameters: Slave AUMA parameters / Slave Profibus parameters are set incorrectly or contradictory.

- Fault: Incorrect configuration
  The configuration set under the menu item bus parameters: slave configuration is not allowed (the version K10000x.DX.000 does not allow all configurations).

- Fault: no AUMA slave, Ident No. xxxx.
  The selected slave is not an AUMA slave.
  The DP-WIN program version 2.0 can only control AUMA slaves with the ident no. 0732 hex and show their status.

The third field shows the number of connection faults. This can be useful for continuous tests and fault finding.

The fourth field shows the status of the master:
- If the master is in the STOP-state, it does not communicate with the slave.
- If the master is in the CLEAR-state, the actuator cannot be controlled, but the master reads the feedback from the actuator.
- If the master is in the OPERATE-state, it is totally operative.

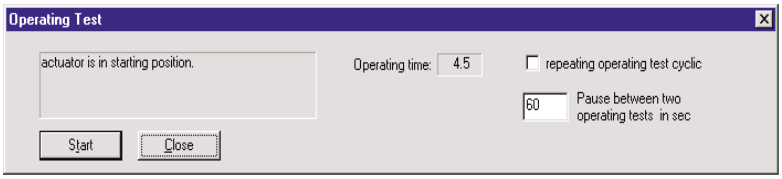
4. Test run

Correct operation of the actuator can be checked with the test run.

The button test run can only be clicked if the communication to the selected actuator is active.
On clicking the button test run, the following dialogue appears:

The test run is started after the button Start/Stop has been clicked. It can be stopped by clicking the button Start/Stop again.
When starting the test run the actuator first runs to completely CLOSED.
The actuator then runs in direction OPEN until the end position CLOSED is exited. If after 10 seconds the end position has not been exited, the test run

Figure 7: The dialogue test run



will be stopped with a fault signal.
The actuator will then be operated from CLOSED to OPEN. In addition, the operating time is determined.
Similar to the end position CLOSED, functionality of the signalisation of the end positions (normally the end position switches) is tested for the end position OPEN.

The actuator will then run to its original position.
If the test run was performed without fault, the indication ”test run passed” will be shown. If a fault occurs, the test run is interrupted and the cause of the fault is shown.
The field Operating time shows the operating time which was determined during the last test run.

If the box ”Repeat test run continuously” is selected, the actuator will on completion of the test not run to the original position. Instead the test run will be repeated.
With the box ”pause time between the test runs in sec” the time between the end of a test run cycle and the start of the next cycle can be set.

5. Trouble shooting and corrective actions

When the program is started the following message can appear:

Figure 8: Start fault

Then the check the following points:

- Has the program DP-Win been started twice simultaneously?
  If yes,
  - exit the DP-WIN program,
  - end the process dp_win.exe in the task manager
  - start DP-WIN again
    or restart your computer.

- Is there an fault in the Profibus cable?
  - Pull out the Profibus plug from the master,
  - exit the DP-WIN program,
  - end the process dp_win.exe in the task manager
  - start DP-WIN again
    or restart your computer.

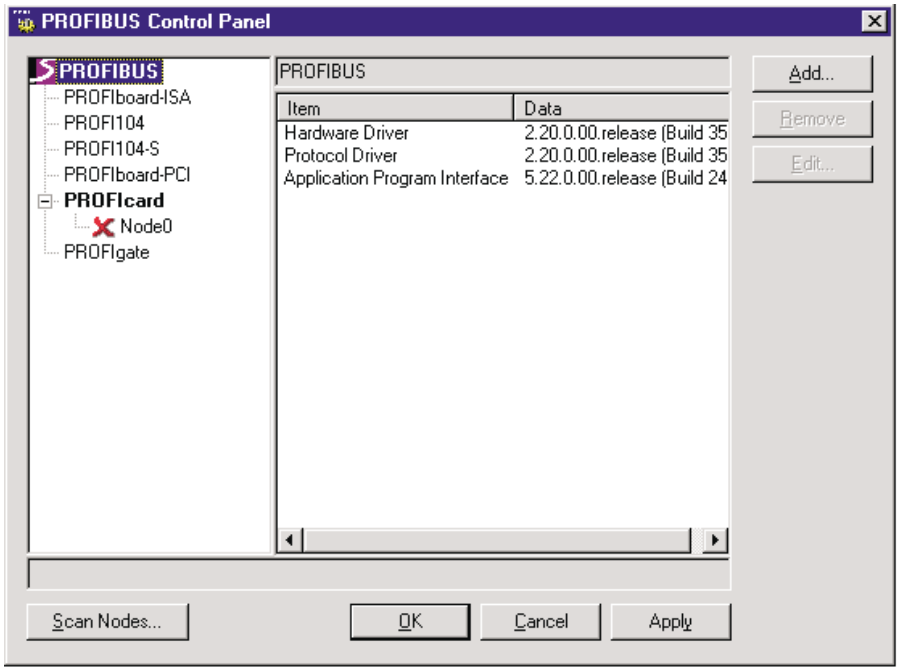
If the error message has now disappeard and the green LED on the Profibus Master card is illuminated, a fault has occurred (e.g. a short-circuit or no power at the termination resistances).

- Does the driver work:
  - Start the computer again without starting DP-WIN.
  - After correct installation of the card the following program symbol should appear in the system control:

After a double-click on the symbol, the following window should oben (Node0 clicked):

Program DP-WIN must not be started!

Figure 9: PROFIBUS Control Panel when ProfiCard was incorrectly installed



If a red cross instead of a green check mark is displayed, the settings of the IO Ports, the DP RAM address or the interrupt are not correct. In this case, please check the free resources of the computer with the program Windows NT diagnosis which can be started via ”Start -> Programs -> Administration (general)” and change the settings of the ProfiCard with the button ”Edit”. For this you must be logged in as administrator.

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Torques from 10 to 32 000 Nm
Speeds from 4 to 180 min^{-1}

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with multi-turn actuators SA/ SAR
Torques from 10 to 1 000 Nm
Speeds from 4 to 180 min^{-1}

Linear thrust units LE
with multi-turn actuators SA
Thrusts from 4 kN to 217 kN
Strokes up to 400 mm
Linear speeds
from 20 to 360 mm/min

Part-turn actuators
SG 05.1 – SG 12.1
Torques from 100 to 1 200 Nm
Operating times for 90° from 4 to 180 s

Part-turn actuators
AS 6 – AS 50
Torques from 25 to 500 Nm
Operating times for 90° from 4 to 90 s

Bevel gearboxes
GK 10.2 – GK 40.2
Torques up to 16 000 Nm

Worm gearboxes
GS 40.3 – GS 125.3
GS 160 – GS 500
Torques up to 360 000 Nm

Lever gearboxes
GF 50.3 – GF 125.3
GF 160 – GF 250
Torques up to 32 000 Nm

Spur gearboxes
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DIN ISO 9001/
EN 29001

Certificate Registration No.
12 100 4269

DO 35.15.001GB /1.00